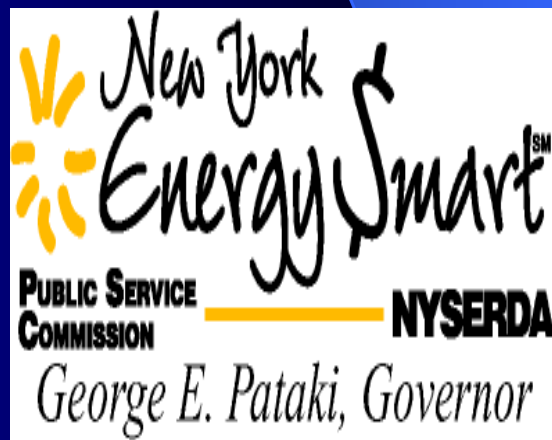


Energy Use in the Municipal Water/Wastewater Treatment Sector

New York Regional Energy Workshop

April 20, 2004

Janet Joseph



Presentation Outline

- Sector-Related Energy Data
- Case Study
- Anticipated Future Investments
- The Water Energy Nexus
- Conclusions

The background is a solid blue gradient. A thin, light blue curved line starts from the left edge, arcs downwards and to the right, passing behind the text, and then continues as a darker blue wedge shape towards the bottom right corner.

SECTOR-RELATED ENERGY DATA

Electricity Use - Municipal Water/Wastewater Sector

- NYS: 3-4 billion kWh/yr,
~3% of total load (NYSERDA).
- In U.S.: 54 to 75 billion kWh/yr,
~3% of total load (VARIOUS).
- U.S. load projected to increase 20%
over the next 15 years (EPRI, 2004).

Electricity Use: Water/Wastewater vs. Industrial Sector (Total U.S. Load)

(DOE, 2004)

- Water/Wastewater Sector - $\sim 3\%$
- Pulp & Paper Industry - $\sim 3\%$
- Chemical Industry - $\sim 6\%$
- Petroleum Refineries - $< 2\%$

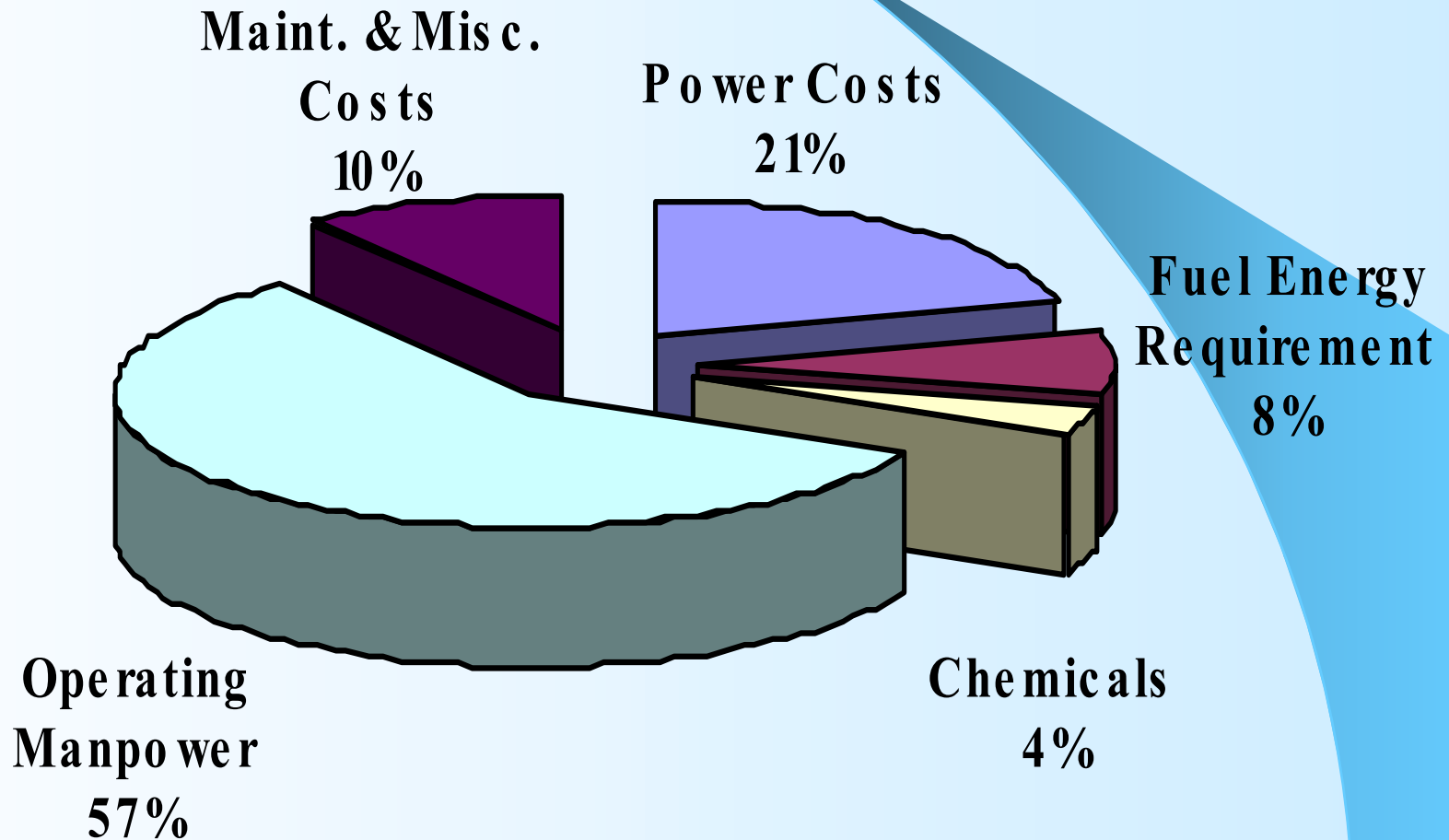
\$\$\$ Spent on Electricity - Municipal Water/Wastewater Sector

- \$6.5 billion annually (ASE, 2002).
- Electricity is the 2nd largest operating cost for most WTPs and WWTPs (VARIOUS).
- Sector consumes ~ 35% of municipal energy budget (EFAB, 2001).

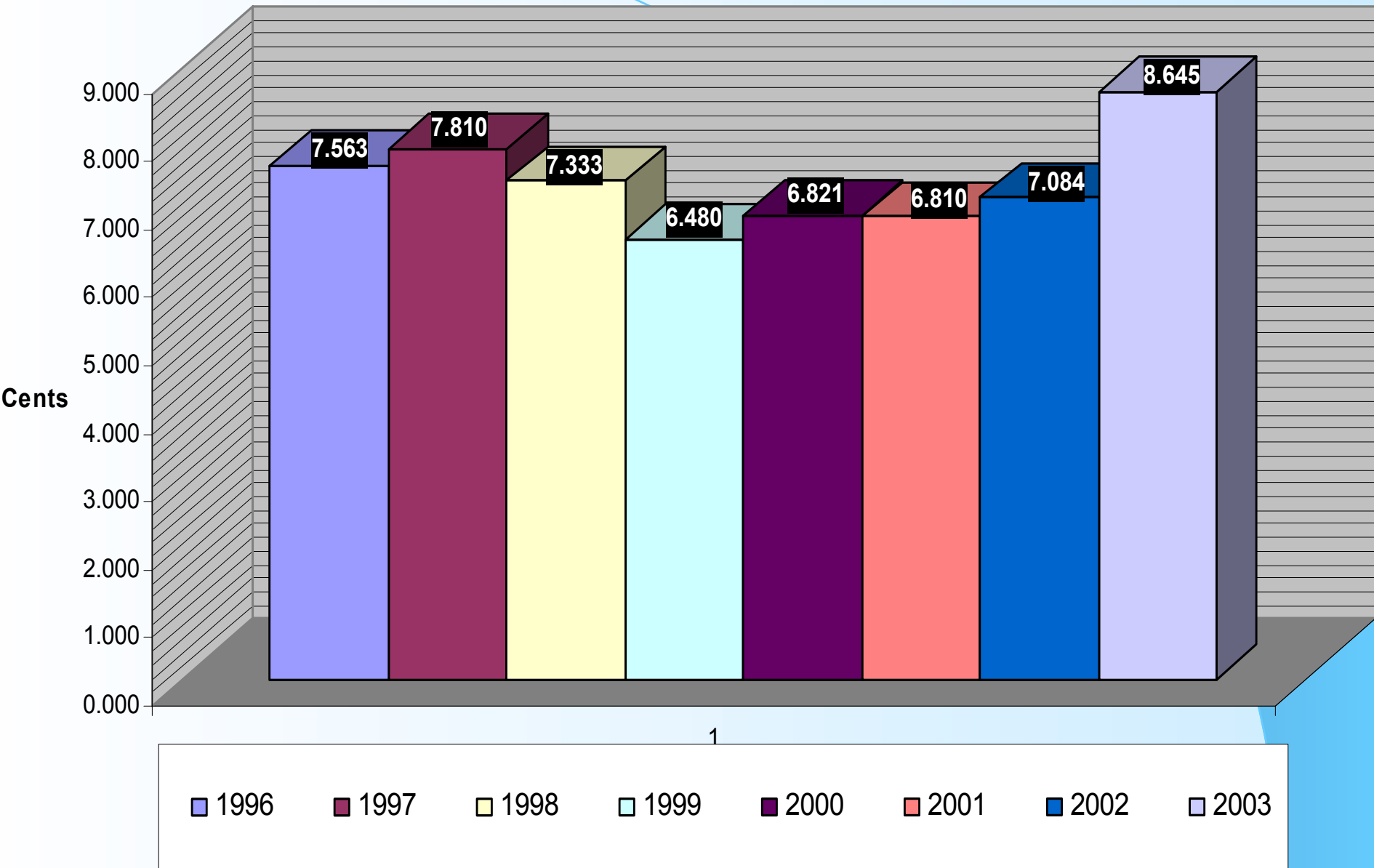
The background is a solid blue gradient. A thin, light blue curved line starts from the left edge and arcs downwards towards the bottom right. A larger, semi-transparent blue shape, resembling a spotlight beam or a stylized 'C', originates from the left and points towards the center-right, highlighting the text.

CASE STUDY

Albany North & South WWTPs: Total Plant O/M Costs for 2002 - \$6,590,214



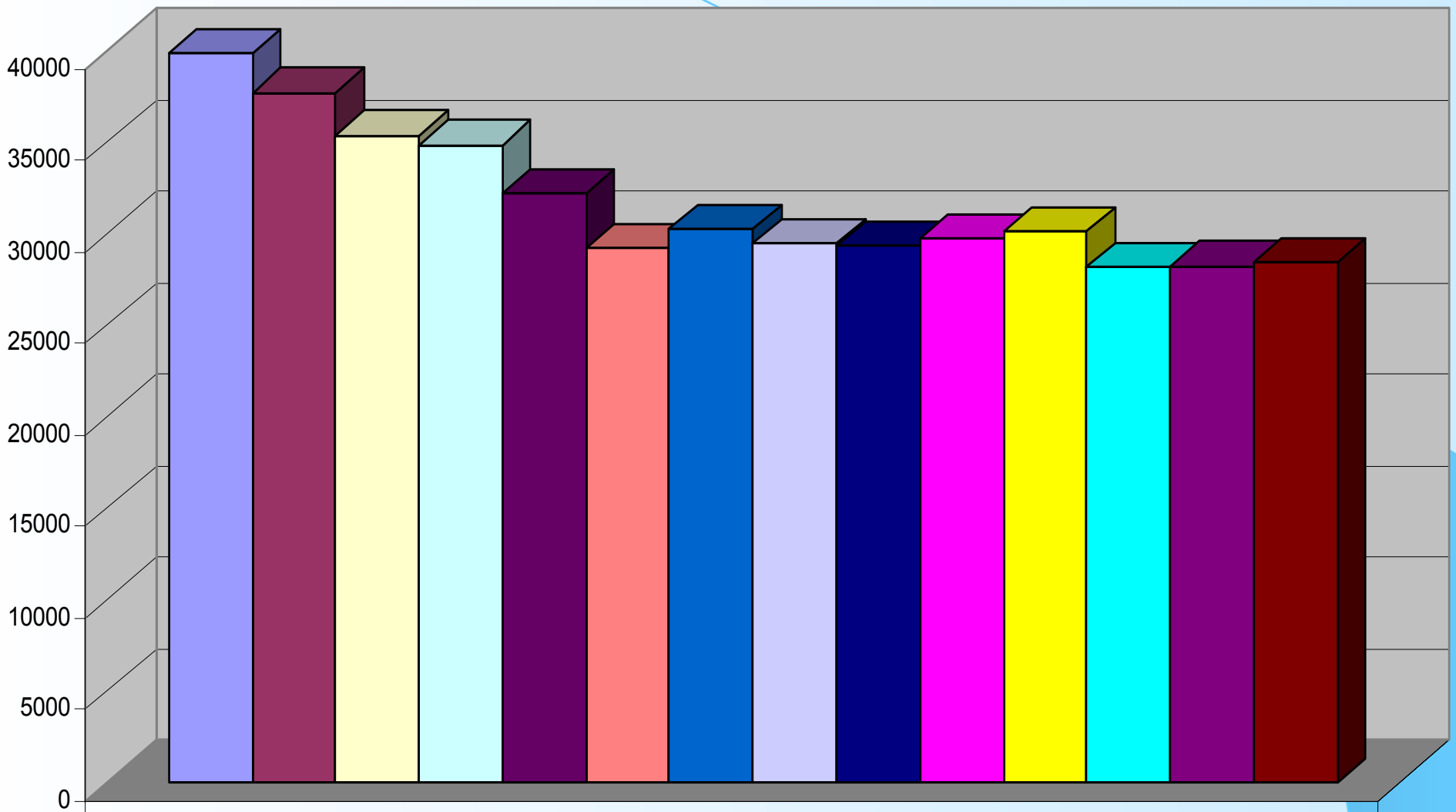
Average Cost KWH North Plant 1996-2003



**“Energy consumption in
most water systems
worldwide could be reduced
by at least 25 percent
through cost-effective
efficiency actions.”**

(ASE, 2002)

Average KWH/Day Albany North Plant 1990-2003



1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003



ANTICIPATED FUTURE INVESTMENTS IN SECTOR

Anticipated Investment

- NYS: \$25 billion over next 10 years
(NYSDOH & NYSEFC, 2003).
- U.S.: Hundreds of billions to a trillion dollars over next 20 years
(VARIOUS).
- \$23 billion a year MORE than current investments (EPRI, 2004).

Factors Motivating Investment in the Sector

- Outdated Treatment Systems
- Need to Increase Plant Capacity
- Security Concerns
- Proposed Regulatory Mandates

**NUMEROUS
OPPORTUNITIES TO
INFLUENCE PLANNING
PROCESS!!**

The background is a solid dark blue. A thin, light blue curved line starts from the left edge and arcs downwards towards the bottom right. A larger, lighter blue triangular shape is positioned in the lower right quadrant, pointing towards the bottom right corner.

THE WATER ENERGY NEXUS

National Initiatives

- ASE Watergy Report
- CEE Water/Wastewater Committee
- ACEEE Roadmapping Effort
- AWWARF Utility Energy Index

NYSERDA Initiative

Assessment of Sector in NYS to:

- Establish baseline energy use/cost data.
- Assess potential for energy savings.
- Provide strategic planning input for future programs.
- Disseminate results to stakeholders and market participants.

The background is a solid blue gradient. A thin, light blue curved line starts from the left edge and arcs downwards towards the bottom right. A larger, semi-transparent blue shape, resembling a spotlight beam or a stylized 'C', originates from the bottom left and points towards the center-right of the slide.

CONCLUSIONS

- ENERGY INTENSIVE SECTOR
- TIMING IS RIGHT
- OPPORTUNITIES EXIST TO PROMOTE ENERGY USE/COST REDUCTION STRATEGIES:

- Metering/Monitoring of Energy/Water use
- Preliminary Design Review
- Financing Mechanisms
- Implementation of Innovative Technologies
- Procurement/Energy Management Strategies
- Training

NYSERDA Contact Information

Janet Joseph

518-862-1090, ext. 3296

or

Kathleen O'Connor

518-862-1090, ext. 3422

kmo@nyserda.org

www.nyserda.org